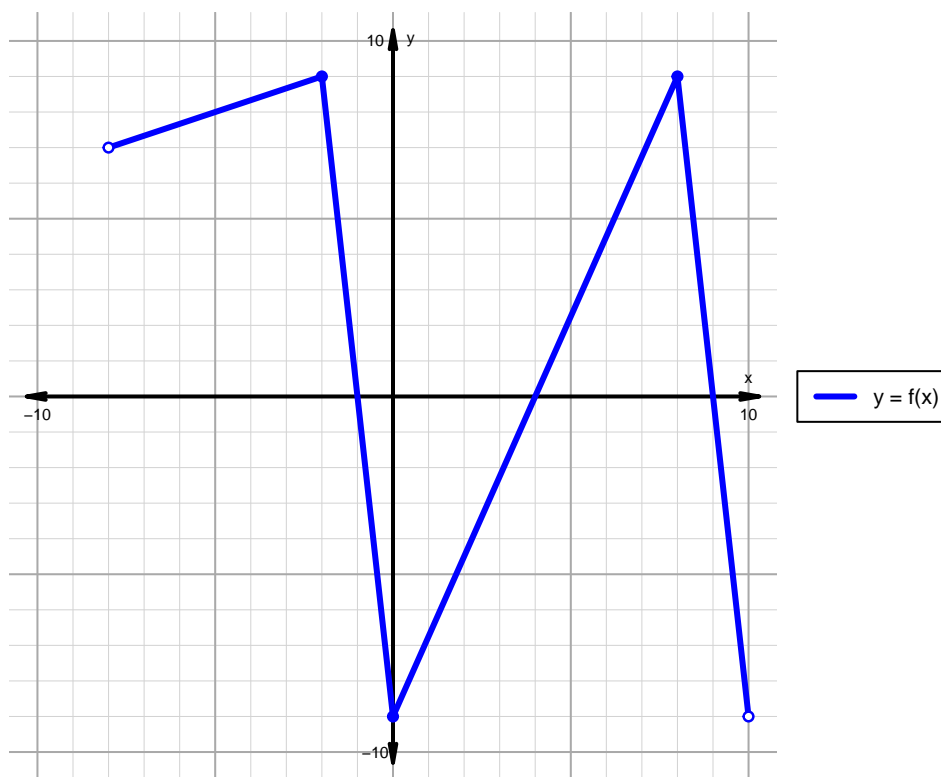# Intervals, Transformations, and Slope Solution (version 133)

1. The function f is graphed below.

Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate x values; this is standard.

Feature	Where
Positive	$(-8,-1)\cup(4,9)$
Negative	$(-1,4)\cup(9,10)$
Increasing	$(-8,-2)\cup(0,8)$
Decreasing	$(-2,0)\cup(8,10)$
Domain	$(-8,10)$
Range	$(-9,9)$

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2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.

$y = f(2 \cdot x)$

$y = f(x + 2)$

$y = f(x) + 2$

$y = 2 \cdot f(x)$
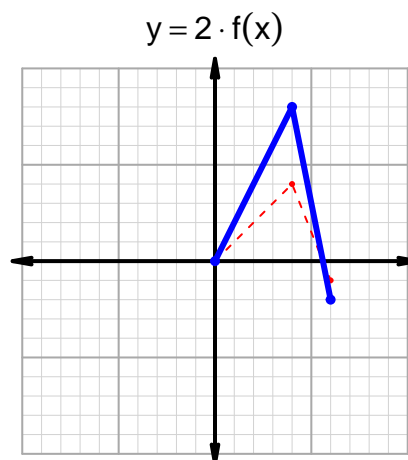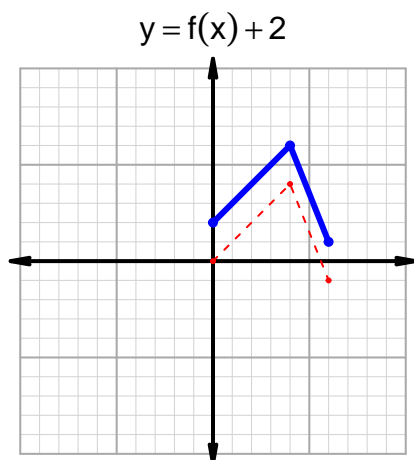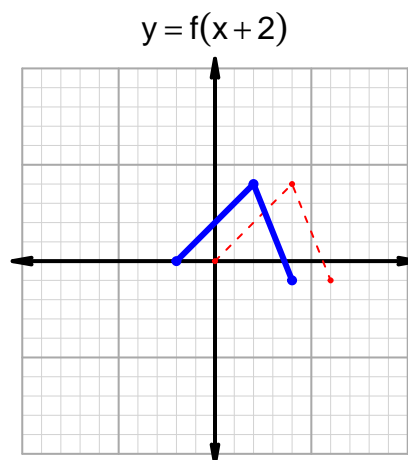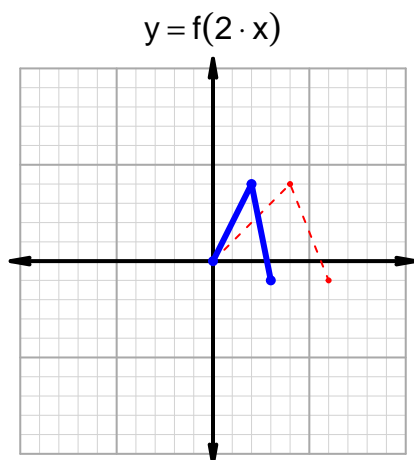
3. Let function g be defined by the table below. Use the formula $\frac{g(x_2) - g(x_1)}{x_2 - x_1}$ to find the average rate of change between $x_1 = 93$ and $x_2 = 99$. Express your answer as a reduced fraction.

x	$g(x)$
9	93
23	99
93	23
99	9

$\frac{f(99) - f(93)}{99 - 93} = \frac{9 - 23}{99 - 93} = \frac{-14}{6}$

The greatest common factor of -14 and 6 is 2. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{-7}{3}$$